

Whimsey THE
First of the Day
Gentlemans Diary,

OR THE
MATHEMATICAL-REPOSITORY:

An ALMANACK.

For the YEAR of our LORD 1741.

Being the First after BISSËXTILE, or
LEAP-YEAR:

Containing many useful and entertaining Particulars,
peculiarly adapted to the ingenious Gentlemen
engaged in the Study and Practice of the

MATHEMATICKS.

The first *Almanack* ever published of this Kind.

— Quâ causâ argentea Phœbe
Passibus haud æquis graditur; cur subdita Nulli
Hactenus Astronomo numerorum fræna recusat,
Cur remeant Nodi, curque Auges progrediuntur.

— Quantis refluxum vaga Cynthia pontum
Viribus impellit; dum fractis fluctibus ulvam
Deferit, ac Nautis suspectas nudat arenas,
Alternis vicibus suprema ad littora pulsans.

L O N D O N :

Printed by W. BOWYER for the  of
STATIONERS. 1741

P R E F A C E.

WE are sensible, that among the numerous List of annual Writers, our present Endeavours may be by some looked upon as altogether Needleless or Superfluous. 'Tis true, we have several ingenious Writers who annually honour their Country with their Labours, and give great Satisfaction to the Virtuoso's of the Age: Yet we hope that (since we pursue another Method, and act upon different Principles from them) our present Endeavours may meet with a Reception in the World, proportional to the Simplicity and Integrity with which we offer them to the Publick. And, we would assure them, that it is not our being dissatisfied with the Performances of others; it is not from a Principle of Carping, nor with an Itch of Writing, and making ourselves popular; nor yet is it for any By-ends of our Town, whether Interest or Advantage, that these Endeavours appear in the World: But, a generous Design to promote, and encourage the most useful and profitable Study of the *Mathematicks*, the Beauty and Sweetness whereof, is only known to the happy Genius's possessed of them; and to excite an agreeable Emulation amongst the ingenious Gentlemen, who have Capacities and Opportunities to peruse what we now present them with. And since we do not think it proper at our first appearing, to affect any Theorems, or Terms of Art, which might seem abstruse and unintelligible, so far as to discourage the young *Philomaths*; we hope that those who have made greater Advances, will have Candour enough to excuse us, and give us leave to conduct the young *Tyr'd* into the pleasing Field, without clogging them with too heavy Burdens at their first setting out. For as this can only be looked upon as an Introduction, we chuse to avoid all unnecessary Embellishments, and endeavour to render the whole Familiar, Easy, Intelligible, Clear, and Perspicuous. Indeed, it is almost needless to say any thing in recommendation of the *Mathematical* Studies; which are now very well cultivated, and almost universally approved. And it is as needless to enumerate all the various Branches of Commerce, Military Discipline, Fortification offensive and defensive, Mechanics, &c. &c. wherein they are not only useful, but strictly necessary; so that their general extensive Usefulness to all Mankind gives them the highest Recommendation possible. Therefore all we shall add is, to give an Account

P R E F A C E.

of the following Work, together with an Explanation thereof; that so the Reader may know what he is to expect in the Work before him. We have in the first (or Kalendar) Part, endeavour'd to make it as generally useful as possible to all; leaving out whatever is so superfluous, trifling, or unnecessary; and omitting nothing that is material so far as Room would admit. At the Top of each Month you have the Full, Change, and Quarters of the Moon. In the first Column to the left Hand, the Days of the Month, and Dominical Letter. In the second, *Sundays*, Holidays, and other remarkable Days, together with the Terms, Eclipses, Regulation of Clocks, Sun's rising and setting, the Length, Increase, and Decrease of Days, Crepusculum, &c. And, during the Time the Sun is in the northern Signs; whenever we give the Time of his due Easting, or Westing, we also give his Altitude above the Horizon at that Time. In the third Column, you have the Time of the Moon's rising from the Full to the Change; and setting from thence to the Full. Lastly, at the Bottom of each respective Month, you have the rising, southing, or setting, of *Saturn*, *Jupiter*, *Mars*, *Venus*, and *Mercury* (according as they best fall for Observation) for every sixth Day. We have also made our Calculations for the common Latitude with other Writers, viz. *London*; but should a Majority of our Contributors desire to have the next, &c. for the Parallel of 53°. (that being nearly the Middle of *England*) we shall be ready to oblige them. As to the second Part, since we have received but few Letters; and having no Solutions to insert this first Year, we have supplied that Room with some new Theorems in Trigonometry, &c. which (tho' we can't expect to be useful to all our Readers, yet) we hope the *Mathematicians* (for whom the Work is chiefly designed) will reap both Pleasure and Advantage from them. We return Thanks to the ingenious Gentlemen who have honoured us with their Letters, and hope for the Continuance of their Favours, according as they find Satisfaction in our Performance. To conclude, that our Labours may become generally useful to the Publick, that Learning and Ingenuity may flourish, useful Science be well cultivated, and meet with deserved Encouragement; and that Knowledge may dispel all Clouds of Ignorance, that so the admirable Beauty, Harmony, and Regularity of the wonderful Works of the all-wise Creator, may be considered and admired in a suitable

P R E F A C E.

and becoming Manner by his Creatures, is the hearty Desire of

The Authors.

Nottingham,

July 12. 1740.

ALL Persons who are pleased to be Contributors to this Work, by answering the Enigmas or Questions; or by sending new ones to be inserted next Year; or any other Subjects fitting for the Work, are desired to send them, and their Solutions along with them, before the 1st Day of May 1741, directed to Mr. John Fuller, at the Bible and Dove in Greed-lane near St. Paul's, London. Post paid.

Lately Publish'd,

In one Volume in Octavo, Pr. 5 s. with a large and compleat Table to the Whole.

THE General Laws of Estates; or, Freeholder's Companion. Containing, the Laws, Statutes and Customs relating to Freehold and other Estates, whereby all Country Gentlemen and Freeholders may know their Rights thereto, and Qualifications to be Members of Parliament, Electors, Justices of Peace, and Jurymen, and to kill Game, erect Dove-cotes, &c.

In which is comprized, the whole Law of Tenures of Lands; and to whom they fall and descend, or otherwise belong, on any Alteration from the Estates in Fee-simple, down to Estates for Life, and Years, and also Copy-holds; adapted to the Use of all Lords, Landlords and Tenants: With a full and compleat Abstract of the New Act of Parliament concerning Distresses for Rent, Replevins and Ejectments, &c. and several other late popular Statutes.

Likewise, Some very useful Precedents of Deeds and Writings, applicable to this Work.

In the Savoy: Printed by E. and R. Nutt, and R. Galsing, (Assigns of Edward Sayer, Esq;) for Aaron Ward at the King's Arms in Little-Britain.

N. B. This Treatise contains every Thing material on the Subjects, supported by the Institutes of the Lord Coke, and all other the best Authorities both antient and modern; with the Reasonings of our most Learned Judges in difficult Cases—The many Volumes of Reports, and original Authors themselves being referred to in each Page—And not only all Law-Cases, &c. down to this Time; but many Cases in Chancery not to be found in any other Book of this Nature, are also inserted—Very useful and profitable for every one who has any Share of Property in Lands, or Tenements—And to Conveyancers, Law-Practisers, Attornies; or any Person whose Business concerns Titles to Estates—And also every Thing relating to Landlords and Tenants that can happen between them in any Case whatever. Vide the Preface.

JANUARY hath xxxi Days.

New Moon 6 Day at 11 in the Morning.

First Quarter 13 Day at 7 in the Morning.

Full Moon 20 Day at 4 in the Afternoon.

Last Quarter 28 Day at 6 at Night.

Circumcision.

Watch 9 minutes too fast.

Days increased 30 minutes.

1st Sunday after Christmas.

☉ rises at 8 and sets at 4.

Epiphany, or Twelfth Day.

Day 8 hours long.

Day breaks 3 quarters after 5.

Twilight ends 1 quarter after 6.

Watch 12 minutes too fast.

2nd Sunday after Epiphany.

☉ rise 51 minutes after 7, sets 9 minutes after 4.

13 Hilary, Marriage comes in.

14 Oxford and Cambridge Term begins.

15 Watch 13 minutes too fast.

☉ Due East at 5 in the Morning.

☉ Rises 3 quarters after 7, sets 1 quarter after 4.

3rd Sunday after Epiphany.

Days increased 1 hour 18 minutes.

20 Prince of Wales born. Oct. Hill. 1 Ret.

21 Watch 4 minutes too fast.

22 Day break half an hour after 5.

23 Hilary Term begins.

☉ rises half an hour af. 7, sets half hour after 4.

1st Sept. Conv. St. Paul. Marriage goes out.

26 Day break 23 minutes after 5.

Quind. Hill. 2 Ret.

28 Days increased 1 hour 51 minutes.

2 Watch 14 minutes 3 quarters too fast.

30th Charles I. Mart. 1648-9. at Whitehall, &c.

31 Day increased 2 Hours.

M	Saturn	Jupiter	Mars	Venus	Mercury
D	South.	South.	South.	rises.	rises.
1	12 N 43	10 N 15	11 N 36	3 M 27	6 M 44
2	12 5	9 48	11 7	3 35	6 36
3	11 39	9 20	10 34	3 43	6 46
4	11 19	8 54	10 3	3 49	6 58
5	10 41	8 23	9 27	3 50	7 0

FEBRUARY hath xxviii Days.

New Moon 4 Day at 11 at Night.
 First Quarter 11 Day at 7 at Night.
 Full Moon 19 Day at Noon.
 Last Quarter 27 Day at 1 in the Morning.

☐ Sundays and Holy-days; Sun's rising and setting;
 length of Days and Nights; Twilight;
 ☐ Terms, &c.

1	Sexagesima Sunday.	14	W	45
2	Purif. Candlem. Day.	15	Th	50
3	Craft. Purif. 3 Ret.	16	F	55
4	Day breaks 9 minutes after 5.	17	S	60
5	☉ Rise 9 minutes after 7, sets 51 after 4.	18	Sa	65
6	Days increased 2 hours and a half.	19	Su	70
7	Watch 14 minutes and a half too fast.	20	M	75
8	Quing. Shrove-Sunday.	21	Tu	80
9	Octab. Purif. 4 Ret.	22	W	85
10	Shrove-Tuesday.	23	Th	90
11	Ash-Wednesday.	24	F	95
12	Term ends. Cambridge Commencement.	25	S	100
13	Batchelor of Arts.	26	Sa	105
14	Valentine.	27	Su	110
15	1 st Sunday in Lent.	28	M	115
16	Twilight ends 9 minutes after 7.	29	Tu	120
17	Day 10 hours and a half long.	30	W	125
18	Ember-Week.	31	Th	130
19	☉ Rise 38 minutes after 6.		F	135
20	Watch 12 minutes and a half too fast.		S	140
21	☉ Due East 5 hours and 40 minutes.		Sa	145
22	2 ^d Sunday in Lent. Princess Maria born.		Su	150
23	Days increased 3 hours 3 quarters.		M	155
24	St. Matthias Ap.		Tu	160
25	Day 11 hours long.		W	165
26	Day breaks 26 minutes after 4.		Th	170
27	☉ Rise 22 minutes after 6.		F	175
28	Watch 10 minutes too fast.		S	180

M	Saturn	Jupiter	Mars	Venus	Mercury
D	South.	South.	South.	rises.	rises.
6	10 N 15	7 N 58	8 N 55	5 M 53	6 M 56
12	9 56	7 39	8 25	5 54	6 52
18	9 27	7 17	8 12	5 49	6 Sets. 8
24	9 4	6 48	7 53	5 46	6 N 10
28	8 48	6 37	7 42	5 42	6 41

MARCH hath xxxi Days.

New Moon 6 Day at Noon.
 First Quarter 13 Day at 8 in the Morning.
 Full Moon 21 Day at 6 in the Morning.
 Last Quarter 28 Day at 9 at Night.

1	Day Sunday in Lent: David.	3	M	27
2	Day 11 hours 30 minutes long.	4		28
3	Days increased 4 hours 23'.	5		11
4	Watch 9 minutes too fast.	5		48
5	☉ Due East 5 hours 57 minutes.	6		13
6	Day breaks 3 minutes after 4.	D Sets.		
7	Day increased 4 hours 28 minutes.	7	A	42
8	Midlent Sunday.	9		8
9	☉ in Aries 43. P.M.	10		32
10	Rises and sets at 6.	11	W	54
11	Watch 7' too fast.	Morn.		
12	Camb. latter Acts.	1		8
13	Day breaks 48 minutes after 3.	2		16
14	Prince Edward born.	3		12
15	5 th Sunday in Lent.	3		55
16	☉ Rise 3 quarters after 5.	4		29
17	Day 12 hours 32 minutes long.	4	V	54
18	Twilight E. 26 minutes after 8.	5		16
19	Watch 4 minutes 3 quarters too fast.	5	T	34
20	Days increased 5 hours and a half.	5	D	54
21	Oxford and Cambridge Term ends.	D Rise.		
22	2 nd m-Sunday.	7	A	54
23	☉ Rise half an hour after 5.	9	W	0
24	Day 13 hours long.	10		12
25	Lady-Day. Ann. B. V.	11		23
26	☉ Due East 6 hours 20'. Alt. 8° 49'.	12		33
27	Good-Friday.	Morn.		
28	Twilight ends 8 hours 51'.	1		37
29	Easter-Day.	2		24
30	Monday.	3		20
31	Tuesday.	3		54

M	Saturn	Jupiter	Mars	Venus	Mercury
D	sets.	sets.	sets.	rises.	sets.
6	M 4 M 20	2 M 35	3 M 52	5 M 30	7 N 29
12	3 58	2 15	3 35	5 30	8 2
18	3 36	1 55	3 17	5 20	8 12
24	3 14	1 36	3 7	5 9	7 58
31	2 50	1 13	2 42	4 58	7 18

APRIL hath xxx Days.

New Moon 4 Day at half an Hour past 6 at Night.

First Quarter 11 Day at half an Hour past 5 at Night.

Full Moon 19 Day at 10 at Night.

Last Quarter 27 Day at 9 in the Morning.

1	All Fools Day.	4	Mars
2	☉ Due East 6 h. 28' Alt. 13° 46.	4	♂
3	Day 13 hours 40 minutes long.	5	7
4	☉ Rise 7 minutes after 5.	7	Sets
5	Low Sunday.	8	♂
6	Marriage comes in.	9	35
7	Days increased 6 hours 34 minutes.	11	55
8	Oxi. and Camb. Easter Term begins.	12	♂
9	Day 14 hours long.	13	♂
10	Watch 1 minute and a half too slow.	1	14
11	☉ Rise 54 minutes after 4.	2	2
12	2 ^d Sunday after Easter. Quind. Pasch. 1 Ret.	2	40
13	Day 14 hours 20 minutes long.	3	9
14	☉ Due East 6' 42' 11. Alt. 16° 25.	3	30
15	Pr. William born. Easter Term begins.	3	50
16	Day 14 hours 36 minutes long.	4	6
17	Day breaks 4 minutes after 2.	4	20
18	Watch 3 minutes too slow.	4	38
19	3 ^d Sunday after Easter. Tres Pasch. 2 Ret.	4	Rise
20	Day 14 hours 38 minutes long.	8	♂
21	☉ Rise 4 hours 35 minutes.	9	22
22	Days increased 7 hours 28 minutes.	10	33
23	St. George. F. C. and Fort.	11	40
24	☉ Due East 6 hours 52' Alt. 20° 36.	12	37
25	St. Mark Evangelist.	12	Morn
26	4 th Sunday after Easter. Mens. Pasch. 3 Return.	12	24
27	Westminster Election.	12	7
28	Day break 18 minutes after 1.	12	30
29	Watch 4 minutes too slow.	2	57
30	☉ Due East at 7 o'Clock, and his Altitude is 3	3	14
	then 23° 15.		

Mars		Saturn		Jupiter		Mars		Venus		Mercury					
sets.		sets.		sets.		sets.		rises.		rises.					
6	14	M	28	10	M	55	12	M	28	14	M	49	4	M	49
23	2	8	6	0	8	37	2	0	12	2	4	01	39	4	29
18	1	8	44	0	8	19	1	0	55	8	4	01	29	4	18
24	1	8	22	11	N	56	1	0	40	1	4	01	19	4	4
30	1	8	04	11	8	37	11	11	24	2	4	0	9	3	51

MAY hath xxxi Days.

New Moon 4 Day 1 quarter past 1 in the Morning.
 First Quarter 11 Day half an hour past 9 in the Morning.
 Full Moon 19 Day at half an hour before Noon.
 Last Quarter 26 Day at 3 in the Afternoon.

1	St. Philip and Jacob.	3	M 38
2	Day 15 hours and half long.	3	37
3	5th Sunday after East r.	2	Sets.
4	Marriage goes out.	8	A 40
5	Quinc. Pasch. 4 Return.	9	57
6	Rogation Days.	11	3
7	Holy Thursday. C. Ani.	11	59
8	Craft. Ascen. 5 Return.	12	33
9	☉ Due East 7 h. 6' Alt. 24° 56'.		Morn.
10	6th Sunday after Easter.	1	14
11	Term ends.	1	38
12	Days increased 8 hours 28 minutes.	1	59
13	☉ Rises at 4 and sets at 8.	2	15
14	Oxf. and Camb. Term ends.	2	30
15	Watch 3 minutes and a half too slow.	2	45
16	Day 16 hours 6 minutes long.	3	10
17	Whit Sunday.	3	16
18	☉ Due East 7 h. 13' Alt. 28° 8'.	3	35
19	Days increased 8 hours 48 minutes.		Rise.
20	Berber-Week.	9	A 39
21	☉ Rise 52 minutes after 3.	10	31
22	Watch 3 minutes too slow.	11	23
23	Day 16 hours 22 minutes long.	12	5
24	Trinity Sunday. Marriage comes in.		Morn.
25	Craft. Trin. 1 Return.	0	36
26	Sun rises 53 minutes after 3.	0	59
27	Oxford Term begins.		W 19
28	Corpus Christi.	1	37
29	K. Charles II. Restoration. Trinity Term begins.	1	55
30	Princess Amelia and Caroline born.	2	16
31	1st Sunday after Trinity. Oct. Trin. 2 Ret.	2	37

Saturn	Jupiter	Mars	Venus	Mercury
sets.	sets.	sets.	rises.	rises.
6 Mo. M 39	11 N 18	5 M 5	4 M 25	3 M 38
12 O 19	10 58	0 46	3 56	3 36
18 11 N 48	10 37	0 29	3 50	3 22
24 11 25	10 16	0 13	3 47	3 21
31 10 58	9 52	11 N 46	3 46	3 28

JUNE hath xxx Days.

New Moon 2 Day 3 quarters after 9 in the Morning.
 First Quarter 10 Day 1 quarter past 3 in the Morning.
 Full Moon 17 Day 3 quarters past 10 at Night.
 Last Quarter 24 Day at half an hour past 8 at Night.

1	Sun rises 50 minutes after 3.	3 M 8
2	☾ Ecl. invisible.	☾ Sets.
3	Day 16 hours 35 minutes long.	9 A 39
4	☉ Due East 7 h. 19. Alt. 30° 22'.	10 31
5	Watches with Sun-dials.	11 44
6	Day increased 9 hours 24 minutes.	11 37
7	2 ^d Sunday after Trinity. Quind. Trin. 3 Return.	11 W 58
8	Sun rises 48 minutes after 3.	11 17
9	☉ Greatest decl. N. 23° 29'.	Morn.
10	☉ in Cancer 1 quarter before Noon. L. Day.	10 33
11	K. George II. Inaug. Barnabas.	10 48
12	☉ Due East 7 h. 21. Alt. 30° 34'.	11 17
13	Watch 1 minute and a half too fast.	1 17
14	3 ^d Sunday after Trinity. Tres Trin. 4 Ret.	11 36
15	K. George II. proclaimed.	11 56
16	Watch 2 minutes too fast.	12 25
17	Term ends.	☉ Rises!
18	☉ Rises 3 quarters after 3.	9 A 10
19	Day decreased 4 minutes.	9 56
20	Watch 3 minutes too fast.	10 32
21	4 th Sunday after Trinity.	10 59
22	Day 16 hours and a half long.	11 W 20
23	☉ Due East 7 h. 15. Alt. 28° 35'.	11 M 39
24	St. John Baptist. Midsummer.	11 57
25	St. John's Coll. Election.	12 M 16
26	Day decreased 14 minutes.	Morn.
27	Watch 4 minutes too fast.	0 36
28	5 th Sunday after Trinity.	1 0
29	St. Peter and St. Paul.	1 33
30	Exeter Coll. Election.	2 12

M	Saturn	Jupiter	Mars	Venus	Mercury
Days	sets.	sets.	sets.	sets.	sets.
6	10 N 35	9 N 35	11 N 27	8 N 19	8 N 35
12	10 8	9 8	11 8	8 25	9 7
18	9 8	8 8	10 49	8 33	9 2
24	9 8	8 8	10 30	8 37	9 4
30	9 8	8 7	10 11	8 35	9 4

JULY hath xxxi Days.

New Moon 1 Day at half an hour past 9 at Night.

First Quarter 9 Day at 9 at Night.

Full Moon 17 Day at 8 in the Morning.

Last Quarter 24 Day at 1 in the Morning.

New Moon 31 Day at 9 in the Morning.

1 Day 16 hours 1 quarter long. Sets.

2 ☉ Rises 54 minutes after 3. N.

3 ☉ Due East 7 h. 13'. Alt. 28° 8'. 34

4 Days decreased half an hour. 58

5 6th Sunday after Trinity. 18

6 Watch 5 minutes 1 quarter too fast. 34

7 Cambridge Commencement. 49

8 Day 16 hours long. 4

9 Sun rises at 4 and sets at 8. 19

10 ☉ Due East 7 h. 7' Alt. 24° 58'. 34

11 Now some real N. begins. 54

12 7th Sunday after Trinity. Morn.

13 ☉ Rise 8 minutes after 4. 16

14 ☉ Due East 7 h. 6' Alt. 24° 50'. 51

15 Swithin. 38

16 Watch 5 minutes 3 quarters too fast. 36

17 Day 15 hours 34 minutes long. Rise.

18 Days decreased 1 hour. 8 A 51

19 8th Sunday after Trinity. Dog-days begin. 9 W 17

20 Day break at 1 o'Clock. 9 38

21 Watch 5 minutes and a half too fast. 9 58

22 Mary Magdalen. 10 20

23 ☉ Rise 23 minutes after 4. 10 34

24 Magdalen Coll. Election. 11 6

25 St. James the Apostle. 1 34

26 9th Sunday after Trinity. Morn.

27 ☉ Due East 6 h. 54' Alt. 21° 15'. 0 0

28 Days shorten'd 1 hour 37 minutes. 0 55

29 Day 15 hours long. 1 30

30 Watch 4 minutes 3 quarters too fast. 2 58

31 Princess Augusta born. Sets.

M	Saturn	Jupiter	Mars	Venus	Mercury
D	rises.	rises.	sets.	sets.	sets.
6	5 M 20	3 M 54	9 N 55	8 N 16	8 N 32
12	5 0 2	3 8 38	9 0 35	8 8 6	8 8 27
18	4 0 42	3 8 20	9 0 16	8 8 2	8 8 19
24	4 0 24	3 8 51	8 0 57	7 8 59	8 8 10
31	4 2	2 46	8 30	7 42	8 0

AUGUST hath xxxi Days.

First Quarter 8 Day at half an hour past 1 in the Afternoon.

Full Moon 15 Day 3 quarters in the Afternoon.

Last Quarter 22 Day 1 quarter past 8 in the Morning.

New Moon 30 Day half an hour before 1 in the Morning.

1	L. mmas-Day.	8	A	20
2	10 th Sunday after Trinity.	8		38
3	Day breaks 76 minutes after 2.	8		55
4	☉ Rise 3 quarters after 4.	9		16
5	Day 14 hours and a half long.	9		24
6	☉ Due East 6 h. 44' Alt. 17° 21'.	9		41
7	Watch 3 minutes too fast.	9		58
8	Twilight ends 39 minutes after 9.	10		19
9	11 th Sunday after Trinity.	10		48
10	Days decreased 2 hours and a half.	11		28
11	Day breaks half an hour after 2.	Morn.		
12	☉ Rise at 5 and sets at 7.	0		19
13	☉ Due East 6 h. 37' Alt. 14° 45'.	1		22
14	Watch 1 minute and half too slow.	1		42
15	Day decr. 2 hours 50 minutes.	☉ Rise		
16	12 th Sunday after Trinity.	7	A	51
17	Day breaks 48 minutes after 2.	8		12
18	Day 13 hours 40 minutes long.	8		31
19	Watch and Sun together.	8		51
20	☉ Rise 1 quarter after 5.	9		15
21	Sun due East 6 h. 25' Alt. 10° 15'.	9		39
22	Day 13 hours and half long.	10		10
23	13 th Sunday after Trinity.	10		54
24	St. Bartholomew,	11		47
25	Day breaks 13 minutes after 3.	Morn.		
26	Watch 2 minutes too slow.	0		50
27	Dog-days end.	1		56
28	Sun rises half an hour after 5.	3		9
29	Sun due East 6 h. 16' Alt. 6° 48'.	4		24
30	14 th Sunday after Trinity.	☉ Sets.		
31	Day decreased 3 hours 56 minutes.	7	A	25

M	Saturn	Jupiter	Mars	Venus	Mercury
rises.	rises.	sets.	sets.	rises.	
6	3 M 44	2 M 33	8 N 19	7 N 51	7 M 37
12	3 26	2 16	8 5	7 42	4 43
18	3 7	2 7	7 50	7 31	4 8
24	2 49	1 49	7 34	7 19	3 42
31	2 29	1 29	7 17	7 7	3 52

SEPTEMBER hath xxx Days.

First Quarter 7 Day at 5 in the Morning.

Full Moon 14 Day 1 quarter past 1 in the Morning.

Last Quarter 20 Day at half an hour past 6 at Night.

New Moon 28 Day 3 quarters past 5 at Night.

1	Watch 4 minutes too flow.	7	39
2	London burnt in the Year 1666.	7	56
3	Day 12 hours and a half long.	8	12
4	Sun rise 3 quarters after 5.	8	31
5	Day breaks 42 minutes after 3.	8	57
6	15 th Sunday after Trinity.	9	29
7	Sun due East 6 h. 5' Alt. 2° 20'.	10	14
8	Days decreased 4 hours 18 minutes.	11	12
9	Watch 7 minutes too flow.	Morn.	
10	Softhenes.	0	21
11	Equal Day and Night.	1	41
12	Sun in ☿ at 1 in the Morning.	3	8
13	16 th Sunday after Trinity.	4	35
14	Holy-Rood Day.	Rise.	
15	Day decreased 4 hours 50 minutes.	7 A	10
16	Ember-Week.	7	23
17	Day 11 hours and a half long.	7	48
18	Watch 9 minutes too flow.	8	19
19	Day break 1 quarter after 4.	9	3
20	17 th Sunday after Trinity.	9	54
21	St. Matthew the Apostle.	10	30
22	Sun due East 5 hours 49 minutes.	11	56
23	Day decreased 5 hours 34 minutes.	Morn.	
24	Watch 12 minutes too flow.	1	10
25	Day 11 hours long.	2	28
26	Sun rise half an hour after 6.	3	38
27	18 th Sunday after Trinity.	4	39
28	Watch 13 minutes too flow.	Sets.	
29	St. Michael Arch-angel.	6 N	10
30	Day decreased 6 hours.	6	25

M	Saturn	Jupiter	Mars	Venus	Mercury
D	rises.	rises.	sets.	sets.	rises.
6	2 M 14	1 M 11	7 N 3	6 N 56	4 M 36
12	1 58	0 55	6 49	6 45	5 33
18	1 37	0 39	6 36	6 39	5 54
24	1 19	0 22	6 23	6 32	6 34
30	1 0	0 3	6 10	6 23	7 20

OCTOBER hath xxxi Days.

First Quarter 6 Day at half an hour past 5 at Night.
 Full Moon 13 Day at half an hour past 10 in the Morn.
 Last Quarter 20 Day 3 quarters past 7 in the Morn.
 New Moon 28 Day 1 quarter past Noon.

01	Day breaks 4 hours 40 minutes.	6M	44
02	Day 10 hours and a half long.	7A	26
03	Watch 14 minutes too slow.	7C	35
04	19 th Sunday after Trinity.	8S	16
05	Sun rises 6 hours 50 minutes.	9	27
06	Sun due East half an hour after 5.	10D	11
07	Day decreased 6 hours 20 minutes.	11D	25
08	Day 10 hours 13 minutes long.	Morn.	
09	Watch 15 minutes too slow.	8S	47
10	Oxf. and Camb. Term begins.	2W	12
11	20 th Sunday after Trinity, and K. G. II. crowned.	3M	37
12	Day breaks at 5.	5C	5
13	Sun rises at 7 and sets at 5.	YR	12
14	Day decreased 6 hours 44 minutes.	5A	52
15	Day breaks 8 minutes after 5.	6	19
16	Sun due East 5 hours 18 minutes.	6D	57
17	Watch 15 minutes too slow.	7S	44
18	21 st Sunday after Trinity. St. Luke Evangelist.	8O	41
19	Sun rises a quarter after 7.	9	51
20	Tres Mich. 1 Return.	11S	1
21	Day 9 hours 22 minutes long.	Morn.	
22	Princess of Orange born.	0	14
23	Michaelmas Term begins.	1D	25
24	Day breaks 22 minutes after 5.	2W	34
25	22 nd Sunday after Trinity.	3M	39
26	Sun rises half an hour after 7.	4D	47
27	Mchf. Mich. 2 Return.	5S	53
28	St. Simon and Jude Apostles.	Y	12
29	Watch 15 minutes and a half too slow.	4A	51
30	K. George II. born.	5	37
31	Day 8 hours 42 minutes long.	6	28

M.	Saturn	Jupiter	Mars	Venus	Mercury
D.	rises.	rises.	sets.	sets.	sets.
06	10 M 40	11 N 44	5 N 57	6 N 15	5 N 29
12	0 19	11 25	5 45	6 8	5 20
18	11 N 57	11 4	5 33	6 6	5 13
24	11 35	10 43	5 21	6 10	5 8
31	11 8	10 20	5 7	6 15	5 6

NOVEMBER hath xxx Days.

First Quarter 9 Day at 5 in the Morning.
 Full Moon 15 Day at 9 at Night.
 Last Quarter 19 Day 1 quarter past 1 in the Morning.
 New Moon 27 Day 1 quarter past 6 in the Morning.

1	2 ^d Sunday after Trinity.	All Saints.	7	A	20
2	All Souls.		8	D	26
3	Craft. Anim. 3 Return. All Souls Coll. Election.		9	W	30
4	Sun sets 20 minutes after 4.		10		41
5	Gun-powder Plot 1605.		11	S	56
6	Day decreased 8 hours 18 minutes.				Morn.
7	Day breaks 5 hours 43 minutes.		2	D	42
8	24 th Sunday after Trinity.		3	D	57
9	Sun rises 52 minutes after 7.		5	W	26
10	Watch 14 minutes and a half too flow.		6	O	48
11	Martin Luther Bishop.				Rise.
12	Craft. Mart. 4 Return.		5	A	12
13	Day decreased 8 hours 42 minutes.		5	S	53
14	Sun rises at 8 and sets at 4.		6	O	47
15	25 th Sunday after Trinity.		7	D	45
16	Day breaks 51 minutes after 5.		9	O	20
17	Sun due East 50 minutes after 4.		10	W	16
18	Octab. Mart. 5 Return.		11		13
19	Princess of Wales born.				Morn.
20	Sun rises 6 minutes after 8.		1	T	24
21	Watch 10 minutes too flow.		2	D	28
22	26 th Sunday after Trinity.		3		42
23	Day 7 hours 40 minutes long.		4		41
24	Watch 9 minutes too flow.		5	D	39
25	Quind. Mart. 6 Return.		6		46
26	Baliol Coll. Election.		8	S	2
27	Marriage goes out at Advent-Sunday.				Sets.
28	Term ends.		5	A	84
29	Advent-Sunday.		6	W	4
30	St. Andrew the Apostle.		7		5

M	Saturn	Jupiter	Mars	Venus	Mercury
D	rises.	rises.	sets.	sets.	sets.
29	6 10 N 50	9 N 52	4 N 52	6 N 20	15 N 3
20	10 2 24	9 30	4 44	6 11 48	5 0
13	10 2 0	9 5	4 35	6 11 59	4 11 53
8	9 2 58	8 41	4 27	7 0 15	4 11 10
6	9 2 8	8 11	4 18	7 0 28	3 11 36

DECEMBER hath xxxi Days.

First Quarter 4 Day at 3 in the Afternoon.

Full Moon 10 Day 3 quarters past 3 in the Afternoon.

Last Quarter 18 Day at 6 at Night.

New Moon 26 Day at 10 at Night.

1	Day breaks 3 minutes after 6.	8A	36
2	Day 7 hours 28 minutes long.	9	38
3	Watch 4 minutes 1 quarter too slow.	10	51
4	Sun rise 17 minutes after 8.	0M	8
5	Day decreased 9 hours 10 minutes.	1	26
6	2 ^d Sunday in Advent.	2	28
7	Princess Louisa born.	4	6
8	Watch 2 minutes 1 quarter too slow.	5	23
9	Day decreased 9 hours 12 minutes.	6	42
10	Sun in v ^e 4 hours 32 minutes. P. M.	7	Rise.
11	Shortest Day.	4A	15
12	Watch and Sun together.	5	14
13	3 ^d Sunday in Advent.	6	21
14	Day breaks 4 minutes after 6.	7	34
15	Day increased 2 minutes. Ember-Week.	8	41
16	Day increased 2 minutes.	9	49
17	Oxf. and Camb. Term ends.	10	54
18	Watch 3 minutes too fast.	0M	1
19	Sun rises 1 quarter after 8.	1	4
20	4 th Sunday in Advent.	2	6
21	St. Thomas the Apostle.	3	17
22	Day breaks at 6.	4	27
23	Days increases 9 minutes.	5	31
24	Day 7 hours 35 minutes long.	6	36
25	CHRISTMASS-DAY.	7	24
26	St. Stephen. Proto. M.	8	Sets.
27	1 st Sunday after Ch. St. John Evangelist.	4A	46
28	Innocents.	5	51
29	Sun rises 7 minutes after 8.	7	0
30	Watch 8 minutes too fast.	8	29
31	Day 7 hours 48 minutes long.	9	54

M	Saturn	Jupiter	Mars	Venus	Mercury
D	rises.	rises.	sets.	sets.	rises.
6	8 N 41	7 N 47	4 N 8	7 N 34	6 M 22
12	8 18	7 17	4 4	7 42	6 14
18	7 46	6 53	4 2	7 56	6 21
24	7 16	6 7	3 58	8 6	6 37
31	6 44	5 46	Rise.	8 12	6 55

A TABLE of all the Kings and Queens of England since William the Conqueror.

The Year of Birth of each King and Queen, also the Year, Month, and Day whereon they began to Reign, beginning the Year on the first Day of January, 1741. The Length of each Reign. The Years expired since each Reign began and ended.

Names.	Born.	Began to Reign.	Y. M. D.	Beg.	End.
William Conq.	1027	1066 October 14	20 10 26	675	654
William Rufus	1057	1087 Septem. 9	12 10 24	654	641
Henry I.	1058	1100 August 23	35 4 0	641	598
Stephen	1105	1135 Decem. 1	18 10 24	598	587
Henry II.	1134	1154 October 25	34 8 11	587	552
Richard I.	1156	1189 July 6	9 9 0	552	542
John	1166	1199 April 6	17 6 13	542	525
Henry III.	1207	1216 October 19	56 1 0	525	469
Edward I.	1239	1272 Novem. 16	34 7 21	469	434
Edward II.	1284	1307 July 7	19 6 13	434	414
Edward III.	1312	1327 January 20	50 5 1	414	364
Richard II.	1366	1377 June 21	22 3 8	364	342
Henry IV.	1367	1399 Septem. 29	13 5 21	342	328
Henry V.	1389	1413 March 20	9 5 11	328	317
Henry VI.	1421	1422 August 31	38 6 4	317	280
Edward IV.	1442	1461 March 4	22 1 5	280	258
Edward V.	1471	1483 April 9	0 2 13	258	258
Richard III.	1443	1483 June 22	2 2 0	258	256
Henry VII.	1457	1485 August 22	23 8 0	256	232
Henry VIII.	1492	1509 April 22	37 9 6	232	194
Edward VI.	1537	1547 January 28	6 5 8	194	188
Mary I.	1516	1533 July 6	5 4 11	188	183
Elizabeth	1533	1558 Novem. 17	44 4 7	183	138
James I.	1506	1603 March 24	22 0 3	138	116
Charles I.	1600	1625 March 27	23 10 3	116	92
Charles II.	1630	1649 January 30	36 0 7	92	56
James II.	1633	1685 February 6	4 0 7	56	52
{ Mary II.	1662	1689 Feb. 13	5 10 15	52	47
{ William III.	1650			52	30
Anne	1665	1702 March 8	12 4 24	39	27
George I.	1660	1714 August 1	12 10 10	27	14
George II.	1683	1727 June 11	whom God preserve.		

Mr. GEORGE WITCHELL at the Golden Key
in Chick Lane, London, sent us the following
Calculation of Shrove-Tuesday, Easter-Day,
Ascension-Day, and Whit-Sunday for twenty
Years.

Year.	Shrove Tues.	Easter Day.	Ascen. Day.	Whit-Sund.
1740 Feb.	19	April 6	May 15	May 25
1741 Feb.	10	March 29	May 7	May 17
1742 March	2	April 18	May 27	June 6
1743 Feb.	15	April 3	May 12	May 22
1744 Feb.	7	March 25	May 3	May 13
1745 Feb.	26	April 14	May 23	June 2
1746 Feb.	11	March 30	May 8	May 18
1747 March	3	April 19	May 28	June 7
1748 Feb.	23	April 10	May 19	May 29
1749 Feb.	7	March 26	May 4	May 14
1750 Feb.	27	April 15	May 24	June 3
1751 Feb.	19	April 7	May 16	May 26
1752 Feb.	9	March 29	May 7	May 17
1753 Feb.	23	April 11	May 20	May 30
1754 Feb.	15	April 3	May 12	May 22
1755 March	7	April 23	June 1	June 11
1756 Feb.	20	April 14	May 23	June 2
1757 Feb.	11	March 30	May 8	May 18
1758 March	3	April 19	May 28	June 7
1759 Feb.	23	April 11	May 20	May 30
1760 Feb.	8	March 27	May 5	May 15

THE Eclipses of the Luminaries in this Year 1741, are only two, and both of the Sun, and invisible at London, and according to Mr. Joseph Granger's Calculation the first will be on the 2^d Day of June at 10 in the Morning; the Apparent time of the true Eclipsick Conjunction at 10^h 11 40^m but no part of the Sun's Rays will be hid from us, by reason of the Moon having S. Lat. which increas'd by her Parallax, depresses her below the Sun's Limb; but in the Southern Hemisphere it will be a great Eclipse, and be first seen in the Vertical Point of the Sun's Disk at his rising, in the Ethiopic Ocean, about the Mid-way between Africa and America Lat. 18° 47' S. and Long. 14° W. from London. It will rise Centrally eclips'd in the same Ocean, East of St. Sebastian in Brazil in South America Lat. 24° 37' South, and Lon. 26° 30' W. from London. The whole Penumbra enters the Earth's Disk, and the Eclipse ends at Sun Rise near the Eastern Coast of Terra Magellanica in Lat. S. 45° 40'. and Lon. W. from London 58° 14'. The Tract of the Central Appearance bends its Course East inclining to the North. over the Ethiopic Ocean; and passing over Congo in Africa, crosses the Line, and in Lat. 5° 12' N. and Lon. 27° 43' E. from London, the Sun will be totally eclips'd in the Meridian; and in this same Meridian, it will be more or less eclips'd from 35° 4' S. Lat. near St. Catherine's Bay, to 36° 46' N. Lat. In the East Part of the Island of Candia in the Mediterranean Lat. N. 35° 33' and Lon. E. from London 28° 8' it will be eclips'd in the Nonagesimal Degree, the Tract of the Central Appearance passing still Eastward inclining towards the South it leaves Africa; and in Lat. 8° 7' S. and Lon. 86° 58' E. from London, in the Indian Ocean the Sun sets centrally eclips'd. And the setting Sun will be last seen eclips'd in 2° 16' S. Lat. and Lon. E. from London 74° 15' near a Knot of small Isles in the Indian Sea, where the Eclipse ends on the Vertical Point of the Sun's Disk as he quits the Horizon.

The said Mr. Granger also observes, that the second Eclipse will be on the 27th of November, a little before 6 in the Morning, and consequently invisible in Great-Britain, because the Sun is then below the Horizon. But in the South-East Part of the Globe, it will be both Central and Annular, all the Penumbra falling within the Earth's Disk: however we shall omit enlarging any farther upon it.

A TABLE of the Moon's Southing for the first Six Months.

M.D.	January	Feb.	March	April	May	June
	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	7 M. 25	8 M. 4	7 M. 28	9 M. 16	9 M. 48	11 M. 5
2	8 13	9 4	8 28	10 10	10 39	12 A. 3
3	9 6	10 41	9 27	11 3	11 32	1 2
4	10 2	11 42	10 26	11 57	12 A. 28	1 59
5	11 2	12 A. 35	11 23	12 A. 51	1 26	2 54
6	12 A. 3	1 35	12 A. 17	1 45	2 23	3 44
7	1 3	2 27	1 11	2 41	3 21	4 30
8	2 4	3 20	2 5	3 38	4 16	5 13
9	2 57	4 10	2 59	4 35	5 9	6 34
10	3 45	5 3	3 52	5 31	5 56	7 14
11	4 39	5 54	4 47	6 24	6 41	7 54
12	5 26	6 47	5 42	7 13	7 23	8 38
13	6 16	7 41	6 36	8 59	8 2	9 25
14	7 6	8 33	7 30	9 44	8 42	10 15
15	7 58	9 26	8 21	10 25	9 24	11 7
16	8 51	10 15	9 9	11 5	10 6	12 4
17	9 45	11 2	9 53	11 45	11 50	Morn. 1
18	10 37	11 47	10 36	12 26	12 37	1 8 2
19	11 27	12 29	11 17	1 10	12 29	2 1 0 1
20	Morn.	Morn.	11 58	Morn.	Morn.	2 58
21	0 17	1 11	12 39	0 56	1 23	3 51
22	1 3	1 52	Morn.	1 45	2 19	4 42
23	1 46	2 32	1 21	2 36	3 17	5 31
24	2 28	3 14	2 5	3 31	4 15	6 20
25	3 9	3 58	2 50	4 27	5 8	7 9
26	3 49	4 45	3 39	5 24	5 59	7 58
27	4 31	5 36	4 34	6 20	6 50	8 52
28	5 13	6 30	5 29	7 14	7 39	9 47
29	6 1	7 24	6 26	8 5	8 27	10 44
30	6 48	8 28	7 24	8 55	9 19	11 40
31	7 41	9 31	8 21	10 10	10 12	12 A. 12

the TABLE of the Moon's Southing for the last Six Months.

M.D.	July		August		Septem.		October		Novem.		Decem.	
	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.	H.	M.
M. 5	11	41	0	57	1	49	2	1	3	18	3	41
A. 3	2	36	1	42	2	30	2	47	4	14	4	37
2	3	1	27	2	24	3	11	3	36	5	8	31
59	4	2	16	3	5	4	1	4	27	6	0	23
54	5	3	2	3	45	4	43	5	22	6	52	11
44	6	3	44	4	25	5	35	6	17	7	45	0
30	7	4	27	5	6	6	26	7	14	8	35	53
13	8	5	3	5	51	7	23	8	9	9	27	46
34	9	5	45	6	40	8	21	9	2	10	20	39
14	10	6	27	7	34	9	19	9	56	11	16	38
54	11	7	10	8	30	10	15	10	48	Morn.		Morn.
38	12	7	57	9	28	11	11	11	42	1	12	1
25	13	8	49	10	28	Morn.		Morn.	2	10	2	29
15	14	9	44	11	28	0	6	0	37	3	9	3
7	15	10	44	Morn.		0	59	1	34	4	8	4
4	16	11	43	0	23	1	52	2	31	5	6	4
orn. 1	17	Morn.		1	18	2	47	3	31	5	43	5
82	18	0	40	2	10	3	41	4	30	6	29	6
01	19	1	32	3	3	4	39	5	26	7	10	6
58	20	2	35	3	54	5	37	6	20	7	53	7
51	21	3	17	4	47	6	32	7	13	8	33	8
42	22	4	10	5	43	7	26	7	57	9	14	9
31	23	5	3	6	37	8	18	8	40	9	56	9
20	24	5	56	7	31	9	7	9	21	10	36	10
29	25	6	47	8	27	9	54	10	3	11	0	11
58	26	7	40	9	20	10	36	10	43	11	27	0
52	27	8	35	10	10	11	17	11	15	11	50	1
47	28	9	31	11	0	11	59	0	2	1	8	2
44	29	10	26	11	45	0	40	0	48	2	0	3
106	30	11	19	0	28	1	19	1	35	2	50	4
12	31	0	10	1	11		2	2	26			5

An Historical Account of the Rise, Progress, &c. of the Mathematicks. From that excellent System of Learning, *Cyclopædia*, or Mr. E. Chambers's universal Dictionary of Arts and Sciences, &c.

MATHEMATICKS, is a Science, that considers Things as computable or measurable; and took their Origin (as *Josephus* dates it) before the Flood, who makes the Sons of *Seth* observers of the Course and Order of the heavenly Bodies; and that, to perpetuate their Discoveries, and secure them from the Injuries either of a Deluge or a Conflagration, they had them engraven on two Pillars, the one of Stone, the other of Brick; the former of which he says, was standing in *Syria* in his Days.

The first who cultivated Mathematicks after the Flood, were the *Assyrians* and *Chaldeans*; from whom, the same *Josephus* adds, they were carried by *Abraham* to the *Egyptians*; who proved such notable Proficients, that *Aristotle* makes no Scruple to fix the first Rise of Mathematicks among them. From *Egypt*, 584 Years before Christ, they passed into *Greece* through the Hands of *Thales*, who having learnt Geometry of the *Egyptian* Priests, taught it in his own Country. After *Thales* came *Pythagoras*; who, among other mathematical Arts, paid a peculiar Regard to Arithmetick, fetching the greatest Part of his Philosophy from Numbers; He was the first (as *Laertius* tells us) who abstracted Geometry from Matter, and to him we owe the Doctrine of incommensurable Magnitudes, and the five regular Bodies, besides the first Principles of Musick and Astronomy. *Pythagoras* was succeeded by *Anaxagoras*, *Oenopides*, *Briso*, *Antipho*, and *Hippocrates* of *Scio*; who all applied themselves particularly to the Quadrature of the Circle, the Duplicature of the Cube, &c. but the last with most Success: This last is also mentioned by *Proclus*, as the first who compiled Elements of the Mathematicks.

Democritus excelled in Mathematicks as well as Physicks; tho' none of his Works in either kind are extant; the Destruction of which some Authors lay at *Aristotle's* Door.

The next in order is *Plato*, who not only improved Geometry, but reduced it into Physicks, and thereby laid the Foundation of a solid Philosophy: Out of his School pro-

ceeded

ceeded a Croud of Mathematicians. *Proclus* mentions thirteen of note; among whom was *Democritus*, who improved the Analysis first invented by *Plato*; *Theatetus*, who wrote Elements; and *Archytas*, who has the Credit of being the first who applied Mathematicks to Use in Life. These were succeeded by *Neocles* and *Theon*, the last of whom contributed to the Elements. *Eudaxus* excelled in Arithmetick and Geometry, and was the first Founder of a System of Astronomy; *Menechmus* invented the Conick Sections, and *Theodorus* and *Hermotimus* improved the Elements.

For *Aristotle*, his Works are so stored with Mathematicks, that *Blancanus* compiled a whole Book of them: Out of his School came *Eudemus* and *Theophrastus*; the first of which wrote of Numbers, Geometry, and indivisible Lines; the latter a mathematical History. To *Aristeus*, *Isidorus*, and *Hippicles*, we owe the Books of Solids; which, with the other Books of Elements, were improved, collected and methodized by *Euclid*, who died 234 Years before Christ; an 100 Years after *Euclid*, came *Eratosthenes*, and *Archimedes*; cotemporary with the latter was *Conon*, a Geometrician and Astronomer. Soon after came *Apollonius Pergaeus*; whose Conicks are still extant. To him are likewise ascribed the 14th and 15th Books of *Euclid*, which are said to have been contracted by *Hippicles*. *Hipparchus* and *Menelaus* wrote on the Subtenses in a Circle, the latter also, on spherical Triangles; on which Subject, we have a Work of *Theodosius*: And all these, except *Menelaus*, lived before Christ. *Ptolemy* of *Alexandria* was born, A. D. 70. the Prince of Astronomers, and no mean Geometrician: He was succeeded by the Philosopher *Plutarch*, of whom we have still extant some mathematical Problems. After him came *Eutocius*, who commented on *Archimedes*, and occasionally mentions the Inventions of *Philo*, *Diocles*, *Nicomedes*, *Sporus*, and *Heron*, on the Duplication of the Cube. To *Ctesibius* of *Alexandria*, we owe our Pumps; and *Geminus*, who came soon after, is preferred by *Proclus* to *Euclid* himself.

Diophantus of *Alexandria*, was a great Master of Numbers, and first Inventor of Algebra: Among others of the Ancients, *Nicomachus* is celebrated for his arithmetical, geometrical, and musical Works; *Serenus* for his Books on the Section of the Cylinder; *Proclus*, for his Comments on *Euclid*; and *Theon*, has the Credit among some, of being the Author

of the Books of Elements ascribed to *Euclid* himself. The last to be named among the Ancients, is *Pappus of Alexandria*, who flourished A. D. 400. and is celebrated for his Books of mathematical Collections still extant.

Mathematicks are distinguished with regard to their End, into Speculative, which rest in the bare Contemplation of the Properties of Things; and Practical, which apply the Knowledge of those Properties to some Uses in Life.

With regard to their Object, Mathematicks are distinguished into Pure, or Abstract; and mix'd. Pure Mathematicks consider Quantity, abstractedly; and without any relation to Matter: Mix'd Mathematicks consider Quantity as subsisting in material Beings, and as continually interwove.

Pure Mathematicks again, either consider Quantity as discrete, and so computable, as Arithmetick; or as concrete, or continued, and so measurable, as Geometry and Trigonometry.

Mix'd Mathematicks are very extensive, and are distinguished by various Names, as the Subjects they consider, and the Views wherein we take them, vary: It being sufficient to determine an Art to be a Branch of mix'd Mathematicks, that the pure Mathematicks are applicable thereto, i. e. that it may be explained and demonstrated from the Principles of Arithmetick and Geometry. Such are Mechanicks, which are a Science that teaches to move heavy Bodies, with Ease and Conveniency, by the Means of Engines; whence it has also the Name of moving Powers; because it contrives ingenious Machines, to perform the same: Its Powers are six in Number, viz. the Balance, Lever, Wheel, Pulley, Wedge and Screw; to which all others, how complex soever, are reducible, and of the Assemblage whereof they are all compounded.

Hydrostaticks, to which belongs whatever relates to the Gravities and Equilibria of Liquors; with the Art of weighing Bodies in Water, in order to estimate their specifick Gravities. Mr. Boyle has applied Hydrostaticks to good Purpose, in examining and proving the Goodness and Purity of Metals, Minerals and other Bodies, particularly Fluids, in an express Treatise, intitled, *Medicina Hydrostatica*.

Pneumatics is commonly used among us, for the Doctrine of the Air; or the Laws wherein that Fluid is condensed, rarified, gravitates, &c. It considers the Air in Motion,

in, with the Effects thereof; and also considers it in the same Manner that the Hydrostaticks does Water.

Hydraulicks, is adapted to the Motion of Fluids, and particularly Water; and to them belong, not only the conducting and raising of Water; with the constructing of Engines for those Purposes, as Syphons, Pumps, Syringes, Fountains, Fire Engines, &c. but also the Laws of the Motion of fluid Bodies, &c.

Opticks, is properly the Science of Vision, but in a more extensive Acceptation: It not only explains the Manner wherein Vision is performed in the Eye; treats of Sight in general; gives the Reasons of the several Modifications or Alterations which the Rays of Light undergo in the Eye; and shews why Objects appear sometimes greater, sometimes smaller, sometimes more distinct, sometimes more confused, sometimes nearer, sometimes more remote, &c. but they also make a considerable Branch in natural Philosophy; both as it explains the Laws of Nature, according to which Vision is performed; and as it accounts for abundance of physical Phenomena, otherwise inexplicable. For what (without it) can be determined about Light, Colours, Transparency, Opacity, Brightness, Meteors, the Rainbow, Parhelia, &c. What about the Nature of the Stars? The Structure of the mundane System? The Motions of the Planets? Or the Eclipses of the Luminaries, &c.

Catoptricks, the Science of reflex Vision, or a Branch of Opticks, which delivers the Laws of Light reflected from Mirrors.

Dioptricks, is properly a third Branch of Opticks; its Office being to consider, and explain the Effects of Light refracted by passing through different Mediums, as Air, Water, Glass, &c. and especially Lens's.

Perspective, is the Art of delineating visible Objects on a plain Surface; and is divided into Linear, as regarding the Position, Magnitude, Form, &c. of the several Lines, or Contours of Objects; and expressing their Diminution: And Aerial, which regards the Colour, Lustre, Strength, Boldness, &c. of distant Objects, considered as seen through a Column of Air; and expresses the Diminutions thereof: The first is only considered as a Branch of Mathematicks; the latter a part of Painting, and consists wholly in the Conduct

of the Colours, their different Teints, or Degrees, Fort Weakness, &c. Astronomy, a Science, whereby we become acquainted with the Celestial Bodies, their Magnitudes, Motions, Distance Periods, Eclipses, &c.

Geography considers the Earth, and its Affections, as depending on Quantity, and consequently measurable; viz. Figure, Place, Magnitude, Motion, celestial Appearances &c. with the several Circles imagin'd on its Surface.

Hydrography teaches how to describe and measure the Sea, gives an Account of its Tides, Counter Tides, Currents, Soundings, Bays, Gulphs &c. as also its Rocks, Shelves, Sands, Shallows, Promontories, Harbours, Distances, &c. from Port to Port; with all that is remarkable, either out of Sea, or on the Coast.

Chronology is the Art of measuring and distinguishing Time, or the Doctrine of Epochas. *Sturmius* divides it into five distinct Branches; viz. Metaphysical, Physical, Political, Historical, and Ecclesiastical, according to the various Relations, or Habitues wherein Time is consider'd; viz. as in itself, as connected and subjected to the Affections, States, and Alterations of natural Things; as accommodated to civil Use, as match'd with the Events that pass in the World; and particularly as it relates to the Celebration of Easter.

There is more Difficulty in this Branch of Learning than every one is aware of: It requires not only the Knowledge of Astronomy and Geography, and consequently that of Arithmetic, Geometry, and Trigonometry, both plain and spherical, but also a world of Application to the Ancient Monuments. Its Use is very great; 'tis call'd one of the Eyes of History, and serves good Purposes in Theology.

Gnomonics, or Dialling, teaches to draw Sun, Moon, and Star Dials on any given Plane, or on the Surface of any given Body; in order for determining the Hour of the Day or Night.

Protechney, or artificial Fire-works, teaches to make Grenades, Bombs, Cartasses, Petards, Mines, and other Machines of War fitted for the Terror and Destruction of an Enemy. On Rockets, Fire-Lances, Serpents, and other artificial Representations of various Things in Fire, fit for Diversions and Entertainment upon solemn Occasions of Joy, &c.

Military Architecture is the Art of strengthening and fortifying Places, by erecting Forts, Castles, and other Fortifications.

with Ramparts, Bastions, &c. to screen them from the
 Assaults of Enemies, and the Violence of Arms. Civil Architecture, is the Art of contriving and executing
 commodious Buildings for the Uses of Civil Life; as Houses,
 Temples, Theatres, Halls, Bridges, Colleges, Porticoes, &c.
 And Music, the Science of Sound, considered as capable of
 producing Melody, or Harmony: Or, the Art of disposing
 and conducting Sounds, considered as grave and acute; and of
 proportioning them among themselves, and separating them
 by just Intervals pleasing to the Sense. &c.

And thus much shall at present suffice, with regard to the
 general Scope of these sublime Sciences, the Beauties where-
 of we confess have engag'd our utmost Attention to become
 diligent Students; and the Progress of the respective Branches,
 with an Account of several ingenious Authors who have
 wrote on, and improv'd 'em, we purpose to continue in our
 next.

What we shall farther add, is an Account of the first Inven-
 tion of the Method of Fluxions; one of the greatest, midst
 subtle and sublime Discoveries of this, or perhaps any other
 Age: which opens a new World to us, and extends our Know-
 ledge, as it were, to Infinity. It carries us beyond the Bounds
 that seem'd to have been prescrib'd to the human Mind; or, at
 least, infinitely beyond those to which the ancient Geometry
 was confin'd.

The History of which important Discovery, as fresh as it
 is, is a little dark, and embroil'd. Two of the greatest Men
 of this Age do both of them claim the Invention, Sir *Isaac*
Newton and Mr. *Leibnitz*; and nothing can be more glorious
 for the Method itself, than the Zeal wherewith the Partizans
 of either side have asserted the Title.
 To give our Readers a just View of this noble Dispute; and
 of the Pretensions of each Party, we shall lay before them
 the Origins of the Discovery, and mark where each Claim
 commenc'd, and how it was supported.

The first Time the Method made its Appearance in Publick
 was in the Year 1684, when Mr. *Leibnitz* gave the Rules
 thereof in the *Leipzic Acts* of that Year; but the Demonstra-
 tions he kept to himself. The two Brothers, the *Bernoulli's*,
 were presently struck with it; and found out the Demonstra-
 tions, tho' very difficult, and practis'd the Calculus with sur-
 prising Success.

28 Invention of the Method of Fluxions.

THIS is all we hear of it till 1687, when Sir *I. Newton's* admirable *Principia* came forth, which was almost wholly founded on the same Calculus. The common Opinion at that time was, that Sir *Isaac* and *M. Leibnitz* had each invented it about the same time; and what confirm'd it, was, that neither of them made any mention of the other; and that, tho' they agreed in the Substance of the Thing, yet they differ'd in their Ways of conceiving, call'd by different Names, and us'd different Characters; Sir *Isaac* expressing his Fluxion of a Quantity, as x by a Dot plac'd over it, as $\dot{x}$; and *M. Leibnitz* express'd his Differential of the same x , by prefixing a d , as dx , each of which Methods of Notation has its peculiar Advantages. In effect, Mr. *Leibnitz's* Character was supposed by Foreigners to be somewhat more commodious than that of Sir *Isaac Newton*; accordingly the Method soon spreading itself throughout Europe, Mr. *Leibnitz's* Character went with it; by which means the Geometricians were insensibly accusom'd to look on him as the sole or principal Inventor. The two great Authors themselves, without any seeming Concern or Dispute as to the Property of the Invention, enjoy'd the glorious Prospect of the Progress continually making under their Auspices, till the Year 1699, when the Peace began to be a little disturb'd. *M. Fatio*, in a Treatise of the Line of swiftest Descent, having declar'd that he was oblig'd to own Sir *I. Newton* as the first Inventor of the differential Calculus, and the first by many Years; and that he left the World to judge, whether *M. Leibnitz* the second Inventor had taken any thing from him. This precise Distinction between the first and second Inventor, with the Suspicion it insinuated, rais'd a Controversy between Mr. *Leibnitz*, supported by the Editors of *Leipsia Acta*, and the English Geometricians, who declar'd for Sir *Isaac Newton*.

Sir *Isaac* himself never appear'd on the Scene: His Glory was become that of the Nation; and his Adherents, warm in the Cause of their Country, need'd not him to animate them. Writings succeed'd each other but slowly, on either side: probably on Account of the Distance of Places; but the Controversy still grew hotter and hotter. Till at length it came to such a pass, that in the Year 1701, Mr. *Leibnitz* complain'd to the Royal Society, that Dr. *Keil* had accus'd him of publishing

publishing the Method of Fluxions, invented by Sir I. Newton, under other Names and Characters. He insisted, that no body knew better than Sir Isaac himself, that he had stolen nothing from him; and required that Dr. Keil should publicly disavow the ill Construction which might be put on his Words.

The Society here appeal'd to as a Judge, appointed a Committee, to examine all the old Letters, Papers, &c. that had pass'd among the several Mathematicians, relating to the Point; who after a strict Examen of all the Evidences that could be procured, gave in their Report; "That it did not appear that Mr. Leibnitz knew any thing of the differential Calculus before a Letter wrote him by Sir I. Newton, and sent to him at Paris in the Year 1672; wherein the Method of Fluxions was sufficiently explained, to let a Man of his Sagacity into the whole Matter; and that Sir I. Newton had even invented his Method before the Year 1669, and, of consequence, 15 Years before M. Leibnitz had given any thing on the Subject in the *Leippsic Acts*." And thence they concluded that Dr. Keil had not at all injur'd Mr. Leibnitz in what he had said.

The Society printed this Censure of theirs, together with the Pieces and Materials relating thereto, under the Title of, *Commercium Epistolicum de Analyfi praxiosa*. Londio. 1742.

The Book was carefully distributed through Europe, to vindicate the Tide of the English Nation to the Discoverys for Sir Isaac (as already hinted) never appear'd in it: Whether it were, that he trusted his Honour with his Compatriots, who were zealous enough in the Cause; or whether it were, that he was even superior to the Glory thereof.

Mr. Leibnitz and his Friends could not shew the same Indifference: He was accused of a Theft; and the whole *Commercium Epistolicum* either expresses it in Terms, or insinuates it.

Soon after the Publication thereof a loose Sheet was printed at Paris, in behalf of Mr. Leibnitz; then at Vienna. It was one with a world of Zeal and Spirit, and maintains boldly, that the Method of Fluxions had not succeeded that of Differences; and even insinuates that it might have rose from it. The Detail of the Proofs on each Side would be too long, and could not be understood without a large Comment, which must enter into the deepest Geometry.

Mr.

Mr. Leibnitz had begun to work upon a *Commercium Epistolicum* in opposition to that of the Royal Society; but he died before it was completed.

In fine, it must be own'd, that there are strong Presumptions in Favour of Mr. Leibnitz; Presumptions, we mean, that he was no Plagiary: For that Sir I. Newton was the first Inventor, is past all Dispute: His Glory is secure: The reasonable Part even among the Foreigners allow it; and the Question is only, Whether M. Leibnitz took it from him, or fell upon the same thing with him: For, in his Theory of abstract Motions, which he dedicated to the Royal Academy in 1671, before he had seen any thing of Sir I. Newton's, he already supposed infinitely small Quantities; some greater than others; which is one of the great Principles in the profound System.

Quest. 1. By Mr. Joseph Granger.

THERE is a Steeple or Tower, upon which there stands a Spire, or Octagonal Pyramid, whose height is known to be 40 Feet; now on the 11th Day of June, at 10 in the Forenoon, I observ'd the Length of the Shadow of the Steeple and Spire (bearing NNW) to be just 100 Feet; and at the same time I found by Observation, that if from the Top of the Spire you imagine a Right Line drawn parallel to the Horizon, and another from the Bottom of the Steeple, making an Angle with the Horizon—the Complement of the Sun's Altitude, the Extremity of the Shadow at that Instant passes exactly thro' the Point where these two Imaginary Lines intersect; and from this Data, it is required to find the Steeple's Height, and Latitude of the Place.

Quest. 2. By Mr. William Whithead.

TIS admirable to think, to what a surprizing Degree of Perfection our Country-men have lately brought all the various Branches of mathematical Learning; amongst which, that most sublime Science ASTRONOMY, must not be look'd upon as one of the least; with respect either to its Usefulness or Beauty, which has engag'd the superior Genius's in our Nation and others, to use their utmost Industry to set it in a good Light; witness that illustrious Prince of Astronomers,

ers, the great and incomparable Sir Isaac Newton, who has amongst other useful Theories, as a Foundation for succeeding Ages to build upon, and complete the noble Superstructure, demonstrated that the Planets move in Elliptical Orbits. — But, for the Benefit of young Students, and to encourage them in the Pursuit of such noble Studies, we will make a Supposition thus: Let the Earth, and the rest of the Planets move in circular Orbits, always in the Plane of the Ecliptic, with a constant, regular Motion; and let the Distance of the Orb of each Planet from the Sun, the diurnal Motion, and the Places of the Planets the first Day of the 1740 at Noon, be given as below: 'Tis required to find the Time, when each Planet respectively will become retrograde, and how many Degrees they'll go back.

	h	95	0° 2'	♄	23° 9'
☉	♈	52	0 5	♊	19 31
Dist. a	♉	15	0 31	♋	1 59
	♊	10	0 59	♌	21 39
	♋	7	1 36	♍	7 4
	♌	3.8	4 5	♎	2 21
				Planets Places.	
				Diurnal Mot.	

Quest. 3. By Mr. William Whitbead.

I WOULD have an erect direct East Dial so made, that the Distance between the Hour Lines of X and XI may be at least one Foot: Pray Gentlemen tell me the Distance of all the rest of the Hour Lines, and the Height of the Style.

Quest. 4. By Mr. W — B —

WHAT's the greatest Solidity possible of that square Pyramid, whose slant Side is = 60 Inches? and the other Dimensions?

Quest. 5. By Mr. George Ingman.

A Verdant Meadow, next the River side, was possess of; but the flowing Tide has wash'd one Land Mark quite away; but I the other two can easily descry: The marks an Angle * in the River; and contains Degrees † as in the Margin stand: * on Bend; † 108° 45'

The

The other a stout Oak, and as I said, is of a TABLE
 Chains twenty two was first my Part assign'd;
 Betwixt th'aforesaid Ang'lar Point and th'Tree,
 And th'Area, were Acres just eighty three.
 Now, Gentlemen, the Thing I would have shown,
 That I may once again enjoy my own;
 Is th'Place wherel must set my Mark again,
 And you'll be well requited for your Pains.

Quest. 6. By Mr. Richard Goucher.

THERE is a regular Stone, whose Solidity is $= 288$ Inches, and once the Length, with twice the Breadth, and thrice the Depth, is $= 36$ Inches: Quære, the Dimensions, separately, and how many such Stones would wall Mr. Heath's Park, allowing its Area to be 97 Acres, and the Wall to be 7 Feet 4 Inches high, and 1 Foot thick.

Quest. 7. By Mr. George Cape.

SUPPOSE a Ball of Lead of 4 Inches Diameter, to be let fall from a Tower 65 Yards high; at the Bottom of which there is a Cistern of fresh Water, whose Depth is 20.25 Yards: Quære, What time will it take in falling from the Top of the Tower to the Surface of the Water; and how long from thence to the Bottom of the Cistern?

Quest. 8. By Mr. John Badder.

DOWN by a pleasant murm'ring River side,
 Where Fishes sport, and crystal Streams do glide,
 There is a verdant lovely Meadow lies,
 Whose teeming Crops the Winters Frost supplies;
 To this a Friend did call me out one Day,
 That I the same might carefully survey;
 But, as we near approach'd, we at a stand
 Found th' River flowing o'er the fruitful Land:
 Then viewing well the Fences all around,
 Its Form a Triangle complete I found;
 A Foot Plank Walk, from A to th'River side,
 Bisecting the said Angle soon I spy'd,

whose Length to D, I found Chains

twenty four;

Also got these two Dimensions more,

thirty six Chains I found the Side AC

likewise just twenty five the Side AB

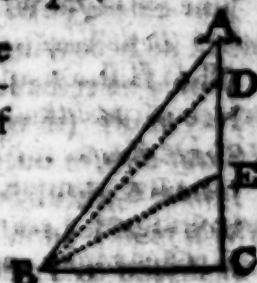
ay, Geodesians, lend you kind Assistance;

twixt Brand C I want the measured Distance.



Quest. 9. By Mr. Richard Cooper.

GIVEN $BD + DA + AB = s$; and the
Angle $EBC =$ the Angle $ABE = 15^\circ$ De-
grees: 'Tis required to find the Area of
the rectangular Field BCA.



Quest. 10. By Mr. Thomas Mather.

Suppose *London*, *Vienna*, and *Constantinople*, all to lye in the
Arc of a great Circle; the Latitude of *Vienna* lying in the
Middle $= 48^\circ 14'$, and the Latitude of *London* and *Constan-*
nople together in one Sum $= 95^\circ 30'$; also the Difference
of Longitude between *London* and *Vienna* $=$ the Difference of
Longitude between *Vienna* and *Constantinople*: I hope from
this Data some ingenious Gentleman will inform me what is
the Latitude of *London* and *Constantinople* separately.

ÆNIGMA I. By Mr. Richard Archibald,

ATTEND and listen, Mortals! while I sing
A useful, hurtful, fruitful, finite Thing:
Assist, my Muse; be thou my faithful Guide,
In mystic Verse this Creature to describe;
Whose Use sure all Mankind must needs approve,
To be the Guard of Innocence and Love:
Tho' when the sacred conjugal Knot is ty'd,
He'er assist; yet when the blushing Bride,
Address'd at Night surrenders, then 'tis I
Support her, tho' no Sharer in the Joy:

C

The

The eager Bridegroom too finds me a Friend,
 When I to ~~both~~ mutual Help do lend;
 But if I chance to fail, he D——ns the Fate,
 Surpriz'd ~~disrepents~~ his Rashness, when too late.
 But then, my Use is not to them confin'd,
 To th' Statesman and the Sailor too I'm kind;
 Without my Help great ~~Vernon~~ ne'er had won
 The Fort of Porto-Bell' with Sword or Gun;
 GREAT BRITAIN'S Fleet would be an empty Show,
 Nor able e'er to give the Dons a Blow,
 "The bellowing Canvass, strutting with the Gale,"
 Would ne'er be seen; "nor Wind suffice the Sail;
 Nay more (if what the Scripture says be true)
 Stout Samson once, to's Cost my Power knew
 I am a faithful Subject to my Prince,
 Whereof I annu'ly the World convince:
 A Friend to Trade I'm always ready found;
 For if you will but look the World around,
 'Mongst Merchants, Millers, Taylors, Coblers I
 Am always sure to find a good Employ;
 Nay, Thousands more too tedious to be nam'd,
 Are all assist'd by my generous Hand.
 If Merit always met a just Reward,
 Justice unbrib'd obtain'd a due Regard;
 At whose Command impartially I stand
 To execute good Laws throughout the Land;
 Many whom I above the Croud advance,
 I'd not molest, but let them take their Chance
 Amongst their Neighbours in this sickle State,
 To taste their common Fortune, see their Fate;
 And many others daily you may find,
 I should exalt; but Justice she is blind;
 So that the Fault cannot be called mine,
 What e're I do, I have a good Design,
 To keep all Vagabonds and Whores in awe,
 I tie them up to the strict Rules of Law;
 Like that I'm sent from Heaven to direct;
 And like the Sword to punish and protect:
 But hold, I'll say no more, you'll tell my Name
 Next Year by th' Hints you'll gather from the same.

ÆNIGMA H. By Mr. William D.

GENTLEMEN, I pray, do not take it amiss,
 That I do appear this Dirtyt assist,
 You'll own very soon I'm no Novel Thing,
 For I have both rais'd and debas'd a King;
 Whose Turnings and Periods do all plainly show,
 That there is no State fix'd nor perfect below;
 When great King Stephen did first his Throne Grace,
 He then did the Sceptre of Gold sway in Peace;
 No sooner I came, but I changed those things,
 For by my Assistance 'tis Civil War springs;
 Of Blood a sad Scene commenc'd as 'tis said,
 When I that great Monarch in strong Irons (a) laid;
 When Edward the Great, whose all conquering Hand
 Quarter'd the French Arms in renowned England (b),
 'Twas I that assist'd, for had I not came,
 Great Edward could ne'er have accomplish'd the same;
 Once was thro' me that a nice Art did (c) flow,
 Which much does assist all the Arts that we know;
 'Twas I that once rais'd one of low degree,
 And made him an Earl (d), as Hist'ries agree.
 But then in short time (e) I did him degrade,
 And sadly, unjustly, did cost him his Head:
 But to make all Amends 'tis hop'd it is I (f)
 Shall prove BRITAIN'S Friend, and proud Spain's Destiny.

ÆNIGMA III. By Mr. Richard Poat.

THO' I am frail and tender, wan and poor,
 Yet cruel Fortune forces me to bear
 Such fiery Trials, as would shock the Mind
 Even of a Heroe! Yet I am confin'd
 With silent Patience to bear every Wrong;
 Oh cruel Fates! my Head's without a Tongue,
 When first I rose from Primogenial Clay,
 Like a helpless tender Infant lay;
 The gentlest Touch then compos'd my Frame,
 With Tears soon melted, — but alas, what Sore,
 That cruel, cruel Trials then I bore!

36 Enigmas to be answered next Year.

My barb'rous Father hurried me away,
Me, a poor helpless Embryo, feeble Clay,
Into a smothering Dungeon; — there I lay
Immur'd and scorching, was shut up from Day;
At length I gather'd Strength, grew stubborn, stout,
Inflexible, so he 'e'en let me out.

When to Maturity of Age I came,
My Skin was white and slick as Cyprian Dams;
Then, on a Day, alas it makes me wild!
Was ever harmless Virgin so beguil'd?
Then, on a Day a tippling Gallant came,
The Youth address'd me with a mighty Flame:
He clasp'd my slender Waist and thus began
(Ah! who would trust that treacherous Creature Man?)
Dear lovely Charmer, 'tis to thee I owe
All my smooth Hours of real Bliss below;
When *Celia* or *Chloe* are unkind,
Your warm soft Kisses cheer my drooping Mind,
Your Breath (my Dear) yields sweeter, softer Balm
Than new blown Roses — and inspires a Calm
Of pleasing Joys in every Lovers Breast:
And then he kiss'd me fifty times at least.
— Well! but alas, how can I bear the rest?
False Man! — — — ungrateful Treachery!
Polluted by thy warm Pretences I,
Alas, have stain'd my Virgin Purity:
Now differing from myself, as black from white,
Again, I'm thrust to Prison; shut from Light,
I blush for Shame! and beg you'll set me free
From this intolerable Misery:
Vainly I sue! for when Maids get a Stain,
No future Tears can wipe it off again;
Yet — — — let me see — — perhaps in *Drury Lane*
I may some Favour with kind Lasses gain,
Since by the changing Fates of Joy and Pain
I'm kiss'd and kick'd, I'm scorch'd and cool'd again.

ENIGMA IV. By — G —.

IF it be possible, pray, Gentlemen, try
Your wistful Envy to suspend — — — while I

In Terms of doubtful Ambiguity
 relate the pleasing Honours I enjoy:
 With warmest Gratitude I here declare,
 I'm oft caress'd and courted by the Fair,
 And have the Honour to attend them still
 At Park, at Play, or when at dear Quadrill;
 Tho' at such Places I'm not oft employ'd,
 I pleas'd I attend them, walking side by side,
 And wait submissive for their first Commands,
 Hoping to be embrac'd by their dear lovely Hands.
 A small Recompence you'd think, did you but know
 What I for their dear Sakes do undergo,
 I would move their tender Hearts to Pity sure,
 Did they but know what I for them endure.
 First, from my Mother's Bowels I was torn
 With rudest Violence——this scarcely o'er,
 But with relentless Fury I am thrown
 Into a burning Furnace, there to moan.
 My cruel Torments still advancing higher,
 At last I weep in Tears of liquid Fire;
 Then was I beat, thrust through the Head, and Head,
 Nor had I any Friend to intercede.
 But now these Sufferings I do all despise,
 I look as bright and shining as their Eyes.
 My Body too is round and neatly made,
 And in a Bed of Silk I'm often laid;
 Nor Gold or Silver does compose my Frame,
 Yet this I boast, a Knight once bore my Name;
 But yet the greatest Honour that I boast,
 Nymphs neat and notable esteem me most;
 Nor need you wonder, for if Fame don't lie,
 None's more the Emblem of true Wit than I.
 Both Rich and Poor do often seek my Aid,
 I'm such a useful, pretty little Blade.
 As I've been frank in telling whence I came,
 And what I am——Pray, Sirs, reveal my Name.

Case 3^d, When one of the
Arcs as AB is greater;
the other BD is less than
a Quadrant. (Fig. 3.)

Here AB + BD is given;

AD required, i. e. give

a, y, m, n , to find v ,

and z . Now by Sim. Tri-

angles; we have, first, $y : x$

$$n : \frac{xn}{y} = dz \therefore m - \frac{xn}{y}$$

$$Ex = \frac{my - xn}{y}$$

And, $1 : y ::$

$$my - xn : my - xn = v =$$

the Sine required. Then, again, $y : x :: n :$

$$\frac{xn}{y} = zC$$

and $DC : Dp :: Ex : bz$;

$$Ex : bz :: my - xn : mx - \frac{x^2n}{y}$$

that is to say, $1 : x ::$

$$my - xn : mx - \frac{x^2n}{y}$$

and by sub-

$$zC = bC ; i. e. mx - \frac{x^2n}{y} + \frac{n}{y} = bC = z$$

and by sub-

$$mx + yn = z. Q. E. I.$$

PROBLEM II.

THE Sines and Cosines of any two Arcs being given,
to find the Sine and Cosine of their Difference : Which Pro-
blem also admits of three Cases ; which may all be refer-
red to the preceding.

Case 1. (Fig. 3.) Let the two Arcs BD, and BE, be giv-
en (their Sum being less than a Quadrant) and let DE their
Difference be required ; now, by comparing this with the
third Case foregoing ; 'tis easy to discover that 'tis the very
same, and therefore needs no Explanation.

Case 2. (Fig. 2.) Let the Arc BL greater, and the Arc BD
less, than a Quadrant be given ; and the Arc DL their Differ-
ence be required ; is also evidently the same with the second
Case in the preceding Problem.

Case 3. (Fig. 1.) Given two Arcs as BL, greater than a
Quadrant ; required DL their Difference, which is greater

Trigonometrical Problems

also than a Quadrant, which is also the same in Case 17th of the preceding Problem, and is there fully explained, to which we refer the diligent Reader.

From the two foregoing Problems may be drawn the following

COROLLARIES.

1st. If the Sine of any Arc, as AB (Fig. 1.) be called x , its Cosine y ; and the Sine of any other Arc, as BD, be called v , its Cosine z ; and the Sine of a third Arc—both the former, as AD be called m , its Cosine n , thence we raise the following

1. $2x + y = m$, the Sine of the Arc AD,
 2. $yx - vx = n$, its Cosine,
 3. $my - nx = v$, the Sine of the Arc BD,
 4. $mx + y = z$, its Cosine.
- Equations. But, if the Arcs AB and BD are equal; then,
 $x = v$, and $y = z \therefore x + y = 2xy = m$, by the first Equation, and
 $y - x = n$, by the Second.

COROLLARY II.

If the Length of any Arc of a Circle, whose Radius is Unity, be called x ; and y its Sine; we have $y = x - \frac{x^3}{6} + \frac{x^5}{120} - \frac{x^7}{5040} \&c.$ (See *Symons' Fluxions* p. 166.) which Series (when the Arc does not exceed 4 or 5 Degrees) will converge very swift; and will therefore be of good Use to find the first Sines in the Quadrant: whereof we will give some

Examples.

First, Let it be required to find the Nat. Sine of one Minute; Here $x = .0002908 \&c.$ and also $y = x = .0002908 \&c.$ for if the second Term, viz. $\frac{x^3}{6}$ be taken, it will not at all affect the former, till the tenth Place of Decimals; Therefore the Sine required of 1' is $= .0002908 \&c.$ and (per 47. E. 1.) its Cosine will be found $= .9999999$.

Ex. 2. Or If it be required to find the Natural Sine of two Minutes; here $x = .0005817, \&c.$ for the Reason aforesaid, and $\therefore$ the Sine of two Minutes is $= .0005817$ and $\sqrt{1 - .0005817^2} = .9999997 =$ the Cosine of 2'. Hence the first Term in the Series gives the Sines true to seven Places;

ect; but, if we had taken the two first Terms, they would
 have given them true to above twenty Places.

COROLLARY III.

And, if $y = .0002908$, be the Sine of one Minute; and
 $= .9999999$ its Cosine, then (by Coroll. 1. Equation 37

$$+ y = .0002908 \text{ the Sine of } 1 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } y + y = .$$

$$2y = 2 \times .0002908 \times .9999997 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } 2y + y = .$$

$.0008726 = \text{Sine of } 3 \text{ Min. And (by Cor. 1. Equ. 4.) } y +$

$$\text{Cosine of one Minute; which we know is } = .9999999$$

$$y + x = .9999999 \left. \begin{array}{l} \\ \end{array} \right\} \text{ gives } y - x = .$$

$$2x = -2 \times .0002908 \times .0005817 \left. \begin{array}{l} \\ \end{array} \right\} \text{ gives } y - x = .$$

$.9999995 = \text{the Cosine of } 3 \text{ Min. (See Cor. 1. Equ. 2.)}$

Or, if $m = .0005817$, the Sine of 2; and $n = .9999997$,

Cosine; $x = .0002908$ the Sine of one Minute, and $y =$

$.9999999$ its Cosine, then per Cor. 1. Eq. 3. we have my

$$- nx = \text{the Sine of one Min. which we know to be } =$$

$$.0002908, \text{ and 'tis plain that } my - nx = .0002908$$

$$+ 2nx = 2 \times .9999997 \times .0002908 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } my + nx = .$$

$.0008726 = \text{the Sine of } 3 \text{ Minutes; and}$

(by Cor. 1. Eq. 4.) $mx + ny = \text{the Cosine of one Minute,}$

which we know to be $= .9999999$, and therefore

$$y + mx = .9999999 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } ny - mx = .$$

$$2mx = -2 \times .0005817 \times .0002908 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } ny - mx = .$$

$.9999995 = \text{Cos. of } 3 \text{ Min (per Cor. 1. Eq. 2.)}$

Also, if $m = .0008726 = \text{the Sine of } 3 \text{ Minutes, and } n =$

$.9999995$ its Cosine, and x and y as before; then will

$$y - nx = \text{the Sine of } 2 \text{ Min. } = .0005817 \left. \begin{array}{l} \\ \end{array} \right\} \text{ make } my + nx$$

$$+ 2nx = 2 \times .9999995 \times .0002908 \left. \begin{array}{l} \\ \end{array} \right\} \text{ make } my + nx$$

$= .0011635 = \text{the Sine of } 4 \text{ Minutes. And } ny + mx =$

$\text{a known Quantity } = \text{Cos. } 2 = .9999997 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } ny - mx =$

$$- 2mx = -2 \times .0008726 \times .0002908 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } ny - mx =$$

$.9999992 = \text{Cosine of } 4 \text{ Minutes.}$

Again, if $m = .0011635$ the Sine of 4 Minutes, and $n =$

its Cosine; x and y the same as before; then $my - nx =$ the

Sine of 3 (a known Quantity) $= .0008726 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } my + nx$

$$+ 2nx = 2 \times .0011635 \times .0002908 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } my + nx$$

$= .0014544 = \text{the Sine of } 5 \text{ Minutes.}$

And $ny + mx = \text{Cos. } 3 = .9999995 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } ny - mx =$

$$- 2mx = -2 \times .0011635 \times .0002908 \left. \begin{array}{l} \\ \end{array} \right\} \text{ makes } ny - mx =$$

$.9999989 = \text{the Cosine of } 5 \text{ Minutes.}$

After

Trigonometrical Problems.

After the same manner we may proceed to find all the Sines and Cosines to 30 Degrees.

And then if $m =$ the Sine of 30 Degrees, and $n =$ its Co-
fine, also x and y the same as before; we have $my - nx =$ a
known Quantity $= \text{Sine } 29^\circ 59' = .4997480$

$+ 2nx = 2 \times .8660254 \times .0002908$ } makes $my +$
 $nx = .5002519 = \text{Sine of } 30^\circ 1'$

And $ny + mx =$ a known Quantity $= \text{Cos. } 29^\circ 59' = .8661708$
 $- 2mx = - 2 \times .5 \times .0002908$ } makes $ny - mx =$
 $.8660880 = \text{Cofine of } 30^\circ 1'$

Again, let $x =$ Sine of 2 Minutes, and $y =$ its Cofine, and
 m and n the same as before. And $my - nx =$ a known
Quantity, $= \text{Sine } 29^\circ 58' = .49949612$

$+ 2nx = 2 \times .8660254 \times .0005817$ } makes $my + nx =$
 $.5005037 = \text{Sine of } 30^\circ 2'$. Also $ny + mx =$ a known Quan-
tity $= \text{Cofine } 29^\circ 58' = .4994961$

$- 2mx = - 2 \times .5 \times .0005817 = -.0005817$ } makes $ny - mx =$
 $.8657344 = \text{Cofine of } 30 \text{ Degrees } 2 \text{ Minutes.}$

And thus we may proceed by this Method to 45 Degrees,
and raise a Trigonometrical Canon, when it is furnish'd
with Tangents and Secants.

And now we shall proceed to the Analytical Investigation
of several Cases in oblique angled spherical Triangles, which
may (we presume) be of great Service in some of the most
difficult Problems in Astronomy, Geography, &c. making
(as before) Radius $= 1$.

PROB. III.

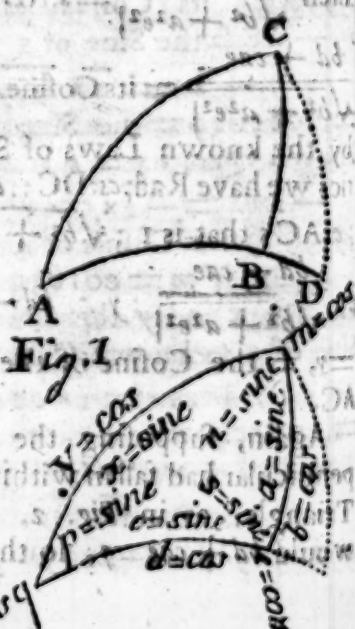
GIVEN the two Sides AC
and BC, and the Angle B oppo-
site to one of them; to find
the Angle A opposite to the
other: make Use of this Ana-
logy $s. AC : s. \angle B :: BC :$

$s. \angle A$ i. e. $x : s : : a \frac{sa}{x} = p = s.$

$\angle A$ required. Q. E. 1. (see
Fig. 1.)

PROB. IV.

LET the Angles A and B,
and the Side BC, opposite to
one



If the two Sides AB, BC , and the included Angle B be given; and the third Side AC be required; let fall a Perpendicular, CD , as in *Fig. 1.* and *2.* then say, $1 : a : 1 : s = CD$; its Cosine is $\sqrt{1 - s^2 a^2}$; substitute for s^2 its Value, viz. e^2 then it will be $\sqrt{1 - a^2 + a^2 e^2}$; and for $1 - a$ substitute

PROB. V.

IF the two Sides AB, BC , and the included Angle B be given; and the third Side AC be required; let fall a Perpendicular, CD , as in *Fig. 1.* and *2.* then say, $1 : a : 1 : s = CD$; its Cosine is $\sqrt{1 - s^2 a^2}$; substitute for s^2 its Value, viz. e^2 then it will be $\sqrt{1 - a^2 + a^2 e^2}$; and for $1 - a$ substitute then $\sqrt{b^2 + a^2 e^2} = \text{Cosine } CD$; and also $\frac{b}{1 - a} : 1 : e : \frac{ca}{b} = \text{Tang}^t BD$; therefore its Secant is $\frac{\sqrt{b^2 + e^2 a^2}}{b}$; its Sine

$\frac{ca}{\sqrt{b^2 + e^2 a^2}}$; and its Cosine $\frac{b}{\sqrt{b^2 + e^2 a^2}}$; and now we

have the Sines and Cosines of two Arcs, viz. AB , and BD . To find the AD , their Sum, or Difference; which, if the Perpendicular falls without the Triangle, as in *Fig. 1.* will be their Sum: But if it falls within it, as in *Fig. 2.* then will be their Difference; either of which may be found per Prob. 1st, and 2nd. But supposing it should fall without the Triangle, as it does in *Fig. 1.*

then $\frac{bd + cae}{\sqrt{b^2 + a^2 e^2}} = s.AD$; and

$\frac{bd + cae}{\sqrt{b^2 + a^2 e^2}} = \text{its Cosine. And}$

by the known Laws of Spherics we have $\text{Rad} : cs.DC :: cs AD$

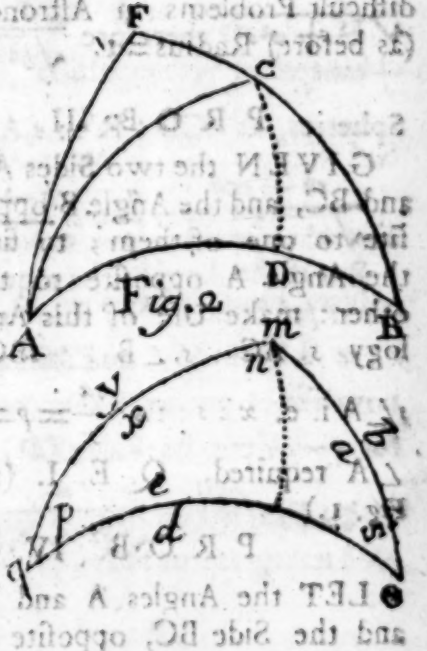
$cs AC$; that is $1 : \sqrt{b^2 + a^2 e^2}$

$\frac{bd + cae}{\sqrt{b^2 + a^2 e^2}} : y :: bd - cae$

$= y$, = the Cosine of the Side

AC .

Again, supposing the Perpendicular had fallen within the Triangle, as in *Fig. 2.* then would $bd + cae = y$; so that if



Trigonometrical Problems. I

an Angle be obtuse, that is, greater than 90 its Cosine may be expressed by its Complement to 180°. with a negative Sign.

This Problem is demonstrated towards the latter End of Mr. *Sympton's* Fluxions, and therefore we should not have inserted it here, but on Account of the Dependence the following Problems have upon it: and also because we expect a great many of our Readers are not provided with that valuable Treatise.

PROB. VI.

GIVEN the three Sides AB, BC, and CA; to find the Angle B; By the last we have $bd - cae = y \therefore cae - bd = y$
 $\therefore e = \frac{bd - y}{ca}$ Q. E. I.

PROB. VII.

BUT if the two Sides AB, and BC, and the Angle B, which they include, be given; and it be required to find either of the other two Angles A, or C, let fall the Perpendicular CD (Fig. 2.) within the Triangle; and per Prob. 5. we

have $\frac{cb - ead}{\sqrt{b^2 + a^2e^2}} = s.AD$; also, $sa = CD$; and its Cofine = $\frac{\sqrt{b^2 + a^2e^2}}{sa}$ therefore $\frac{sa}{\sqrt{b^2 + a^2e^2}} = \text{Tang. CD}$; and per

Spherics, as $s.CD : R :: s.AD : ct A$. i. e. $\frac{sa}{\sqrt{b^2 + a^2e^2}} : 1$

$\therefore \frac{cb - ead}{\sqrt{b^2 + a^2e^2}} : \frac{q}{p} \therefore \frac{cb - ead}{sa} = \frac{q}{p} = ct \angle A$. Q. E. D.

But if the Angle C be required, let fall a Perpendicular as BF, (then per Spherics a.) $\text{Rad} : s.AB :: s. \angle B : s.AF$, i. e. $1 : b :: s : sc = \text{Sine AF}$; and (per 47. E. 1.) its Cofine is $\sqrt{1 - s^2}$; now for s^2 put its Value $(1 - e^2)$ then $\sqrt{1 - e^2 + e^2c^2}$; and for $1 - e^2$ put its Value (d^2) ; then $\sqrt{d^2 + c^2e^2} = \text{Cof. AF}$

its Tangent is $\frac{sc}{\sqrt{d^2 + c^2e^2}}$ again, $ct.AB : R :: ct.B : BF$.
 AB had been given and the Angle to the given side
 Q. E.

The Gentleman's Diary, 1711.

49

and $\frac{ce}{a} = \text{Tangent BF}$; its Secant is $\frac{ae}{a}$

is $\frac{ae}{a}$; and its Cosine will be $\frac{ae}{a}$
 and now having got the Sine and Cosine of BF, and also
 the Sine and Cosine of BC, the Sine CF, of their Difference
 (per C. 1. Pr. 2.) will be $\frac{bce - ad}{\sqrt{a^2 + c^2 e^2}}$; and also, by

the known Laws of Spherics 'twill be $\text{AF} : R :: \text{CF} : cr$.
 i. e. $\frac{sc}{\sqrt{a^2 + c^2 e^2}} : 1 :: \frac{bce - ad}{\sqrt{a^2 + c^2 e^2}} : \frac{m}{n} \therefore \frac{bce - ad}{sc} = \frac{m}{n}$
 $\angle C$.

N. B. If the given Angle B had been obtuse, then

$\frac{q}{p}$; and $\frac{bce + ad}{sc} = \frac{m}{n}$; as may easily be proved by what

we have said before; but we chuse to omit it, and leave it as
 Praxis for our young Trigonometricians.

P. R. O. B. VIII.

Again, let the two Angles A and B, and the Side AB com-
 prehended between them, be given; and let the Side BC be
 required; by the last (when the Angle B is acute) we have

$\frac{q}{p} = \frac{q}{p} \therefore pcb - pad = qsa$, consequently $pcb = pad +$
 $\frac{cp}{ped - sq} = \frac{a}{b} = \text{Tangent BC}$; but if the Angle B had

been obtuse, then it would have been $\frac{cb + cad}{sa} = \frac{q}{p}$ $\therefore pcb$

$pad = saq$, and therefore $pcb = saq - pad$, and conse-

quently $sq - pad = \frac{a}{b} = \text{Tangent BC}$, as in Fig. 11.

P. R. O. B. IX.

FOR, if the two Angles A and B, and the included Side
 AB had been given, and the $\angle C$, opposite to the given Side
 AB

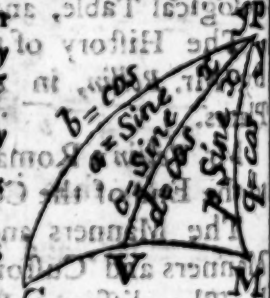
AB had been requir'd, then per Prob. 7. we have $\frac{m}{a} = \frac{p}{b}$ and $\frac{m}{a} = \frac{p}{b}$ likewise $\frac{m}{a} = \frac{p}{b}$ gives $pbc + \frac{pedep}{n} = \frac{sqep}{n} + nceb = smc$ and $dp + abn = sm$; now, if from the two last Equations we exterminate (b) we have $pds - dp = sqe - sm$; also by putting for e^2 its value $(1 - s^2)$ we have $pds = sqe - sm$. $\therefore pds + qe = m$. Q. E. I.

P R O B. X.

The three Angles A, B, and C, being given; to find the Side AB, by the last, $m = pds + qe$. $\therefore \frac{m}{p} = \frac{ds + qe}{p}$ the side AB.

We should have gone thro' the other Cases, but our Design not being to publish a Course of Trigonometry, we chuse to omit them; and, if what we have here done, may be of use to our Readers, and that they may reap the Advantage according to our Desires, is all we wish for. Therefore all we shall add as an Instance of its Usefulness, &c. shall be the Solution of the Prize Question in the Ladies Diary 1739.

Where, let as you see in the Fig. then per Prob. 7. we have $\frac{day - bc}{ax} = \frac{qc - dpy}{px}$ $= ct.GVP = ct.MVP$. Respectively $\therefore pday - pbc = aqc - adpy$, and $\therefore 2pday = c \times aq + pb$; consequently $y = \frac{c}{2p} \times \frac{aq + pb}{a}$. Now 'tis plain by what's before, that $aq + pb$ is the Nat. Sine of the Sum of the Arcs GP + MP which call (s) and also, that $\frac{c}{a} = \text{Tangt}^t$ of the Arc VP which call (e) and then we have this general Theorem $y = \text{Col}^t$ of the Angles GPV or VPM. W. W. R. Likewise



Likewise the Question propos'd by Mr. *Lowiss* in the same
 Diary, which was answer'd last Year by an Equation of the
 eighth Power; may, by the help of the foregoing Problems,
 be solv'd by one of the fourth: However, we'll omit the In-
 vestigation thereof, hoping it may cause some who are cu-
 rious, to be at the Pains to try it themselves. And if any
 ingenious communicative Gentlemen will please to honour
 us so far, as (from what we have here attempted) to make
 any Addition or Improvements, we shall very thankfully re-
 ceive them: our design being not to cavil with any; but, as
 far as in us lies, to improve ourselves and others.

Books Printed for J. and P. Knapton at the Crown in
 Ludgate Street. London.

THE Works of *Samuel Clarke*, D. D. late Rector of St.
James's Westminster: with a Preface giving some Ac-
 count of the Life, Writings, and Character of the Author, by
Benjamin Lord Bishop of Winchester, in 4 Volumes in Folio.

The Sermons of *Samuel Clarke*, D. D. in 2 Vol. Folio, being
 the first and second Volumes of his Works.

The ancient History of the Egyptians, Carthaginians, Assy-
 rians, Babylonians, Medes, and Persians, Macedonians and Gre-
 cians, by Mr. *Rollin*. Translated from the French in 10 Vo-
 lumes in 12°. with Frontispieces beautifully engraven, a Chro-
 nological Table, and a copious Index.

The History of the Arts and Sciences of the Ancients.
 by Mr. *Rollin*, in 4 Vols. 8°. illustrated with 50 Copper
 Plates.

Mr. *Rollin's* Roman History, from the Foundation of Rome
 to the End of the Common-wealth.

The Manners and Customs of the Romans, viz. I. Their
 Manners and Customs considered principally in private Life.

II. The different Kinds of Government and Magistracies.

III. Of their Revenues; the Forces of the State; and of War.

IV. Of their Religion, their different Shews, and the Customs
 observed in them. Translated from the French 8°.

Mr. *Rapin's* History of England. Translated by N. Tindal
 Esq. in 2 Vols. Folio, Price 2l. 2s. 0d. in Sheets.

The Heads of the Kings engraven by Mr. *Perrus*, fit to be
 bound with *Rapin's* History, price 6d. each. The

Books printed for J. and P. Knapton.

The Monuments of the Kings, proper to be bound with *Rapin's History*, being 19 half Sheet Plates at 6*d.* each, and 3 whole Sheets at 1*s.* each.

A Collection of Voyages in 4 Vols. 8^{vo}. Containing the Voyages of Capt. *W. Dampier*, *Waser*, *Funnell*, *Cowley*, *Sham Wood*, *Roberts*, &c. Illustrated with Maps and Cuts.

A new Account of *Guinea* by Capt. *William Snelgrave* 8^{vo}.

The Works of the Right Rev^d. *William Fleetwood*, D. D. late Lord Bishop of *Ely*, in one Volume Folio.

The Sermons preached at the Lecture founded by the Hon. *Robert Boyle* Esq; in three Volumes Folio.

The History of the *Othman Empire*, by *D. Cantemir* Prince of *Moldavia*. Translated by *N. Tindal*, M. A. in one Volume Folio.

The Religion of Nature delineated. The Sixth Edition. To which is added a Preface, containing a general Account of the Life, Character, and Writings of the Author.

Reflections upon Learning. Wherein is shewn the Insufficiency thereof, in its several Particulars, in order to evince the Usefulness and Necessity of Revelation. By a Gentleman. The Seventh Edition.

Military Memoirs and Maxims of Marshal *Turenne*, interspersed with others, taken from the best Authors and Observations, with Remarks. By *A. Williamson*, Brigadier General. Price 2*s.* 6*d.*

A plain and familiar Method for attaining the Knowledge and Practice of common Arithmetick. By *Edmund Wingate* Esq; The Sixteenth Edition.

Dougharty's general Gauger: or the Principles and Practice of gauging Beer, Wine, and Malt, laid down more methodically than any Performance of this Kind yet extant. The Fifth Edition, 12^o.

The young Surveyor's Guide: or a new Introduction to the whole Art of Surveying Land, by the Chain, and all other Instruments now in use. By *Edward Lawrence*, Land Surveyor, 12^o.

An Historical Geography of the Old and New Testament. By *Edward Wells*, D. D. illustrated with Maps and Cuts; in 4 Vols. 8^{vo}.

The young Gentleman's Course of Mathematicks. By *Edward Wells*, D. D. in 3 Vols. 8^{vo}.

A Paraphrase with Annotations on all the Books of the Old and New Testament, in 6 Vols. 4^{to}.